CLAIMS

What is claimed is:

1. A non-invasive expandable bone device in a first bone portion of a patient that elongates the first bone portion by using growth of a second bone portion comprising:

a bone replacement configured to be secured to the first bone portion;

an anchoring member configured to be secured to the second bone portion; and

a connection system configured to connect said bone replacement to said anchoring member, wherein said connection system is configured to expand said replacement section in response to the growth of the second bone portion.

2. The device of claim 1, wherein a first bone includes the first bone portion and the second bone portion.

3. The device of claim 1, wherein a first bone includes the first bone portion and a second bone includes the second bone portion, the first bone connected to the second bone by a joint.

4. The device of claim 3, wherein said bone replacement includes said joint that connects the first bone to the second bone.

5. The device of claim 1, wherein said replacement section includes an expansion shaft that is configured to translate within a housing and is adapted to connect to the first bone portion.

6. The device of claim 5, wherein said expansion shaft translates in said housing a first distance and the second bone portion grows a second distance.

7. The device of claim 6, wherein a first increase in said first distance is caused by a second increase in said second distance.

8. The device of claim 1, further comprising a bearing component that is configured to engage said bone replacement and adapted to secure to the second bone portion.

9. The device of claim 8, wherein said bearing component further includes a cannulated portion through which the connection system passes.

10. The device of claim 9, wherein said bearing component is a tibial resurfacing component.

11. The device of claim 1, wherein said connection system includes a cable that connects said bone replacement to said anchoring member and transmits a force from said anchoring member to said bone replacement to expand said bone replacement.

12. The device of claim 4, wherein said bone replacement is configured to prevent an additional application of force on said connection system when said joint is in one of a flexion condition, an extension condition, and a plurality of positions between said flexion condition and said extension condition.

13. A non-invasive expandable bone device implanted in a first bone portion and a second bone portion of a patient to elongate the first bone portion by using growth of the second bone portion comprising:

a bone replacement section having a housing, an expansion shaft, a connection system, and an implant member;

an anchoring member secured to the second bone portion and spaced from said implant member;

wherein said expansion shaft is configured to translate within said housing a first distance and is adapted to connect to the first bone portion, said first distance between said housing and the first bone member;

wherein said tensioning system is attached to said anchoring system and said expansion shaft;

wherein said implant portion is configured to be secured to at least a portion of the second bone portion and includes a cannulated portion through which said tensioning system passes; and

wherein growth of the second bone portion causes an increase of a second distance between said implant portion and said anchoring member, said increase of said second distance causes said anchoring member to exert a force on said connection system causing an increase of said first distance.

14. The bone device of Claim 13, wherein said connection system includes a cable secured to said anchoring member and connected to said expansion shaft, wherein movement of said anchoring member causes movement of said expansion shaft.

15. The bone device of Claim 14, wherein said cable includes a plurality of projections that meshingly engage said expansion shaft.

16. The bone device of Claim 14, wherein said connection system includes an anti-collapse device.

17. The bone device of Claim 13, wherein the anchoring member includes an anchor plug that is fixedly secured to an intramedullary canal of the second bone portion with at least one of mechanical threads, bonding, mechanical fasteners, and combinations thereof.

18. The bone device of Claim 13 further comprising an intramedullary stem secured to the first bone portion.

19. The bone device of Claim 18, wherein said expansion shaft is configured to releasingly connect to said intramedullary stem.

20. The bone device of Claim 18, wherein said intramedullary stem is modular and adapted to fit variable sizes of an intramedullary canal.

21. The bone device of Claim 13, wherein said first bone portion is a femur and the second bone portion is a tibia.

22. The implant of Claim 21, wherein the housing comprises a distal femoral replacement.

23. The implant of Claim 21, wherein the anchoring member is configured to be secured to a tibial intramedullary canal.

24. The implant of Claim 21, wherein the second bone implant is configured to be a resurfacing tibial component.

25. The implant of Claim 13, wherein said bone replacement section further includes a joint.

26. The implant of Claim 25, wherein said housing includes a distal femoral replacement and said bone implant includes a resurfacing tibial component.

27. The implant of Claim 26, wherein said joint includes a cannulated portion through which the connection system passes.

28. The implant of Claim 27, wherein said cannulated portion is configured to prevent tension of said tensioning system by flexion and extension of said joint.

29. A method of use of a non-invasive expandable bone device in a first bone portion of a patient to elongate the first bone portion by using growth of a second bone portion comprising:

securing a replacement section in the first bone portion;

securing an anchoring member to the second bone portion;

connecting said replacement section to said anchoring member with a connection system, wherein the growth of the second bone portion causes an expansion of said replacement section.

30. The method of claim 29, wherein a single bone includes the first bone portion and the second bone portion.

31. The method of claim 30, wherein the single bone is a femur.

32. The method of claim 29, wherein a first bone includes the first bone portion and a second bone includes the second bone portion, the first bone connected to the second bone by a joint.

33. The method of claim 32, wherein the bone device is configured as said joint between the first bone and said second bone.

34. The method of claim 33 further comprising preventing an additional application of force on said connection system by said joint in one of a flexion condition, an extension condition, and a plurality of positions between said flexion condition and said extension condition.

35. A non-invasive expandable bone device in a first bone portion of a patient that elongates the first bone portion by using growth of a second bone portion comprising

a bone replacement section having a cannulated joint member flexibly connecting the first bone portion to the second bone portion, wherein said cannulated joint is configured to prevent additional application of tension on said connection system by the said cannulated joint.